

Graduate Attributes

A baseline study on South African graduates from the perspective of employers

Hanlie Griesel and Ben Parker

January 2009

Acknowledgements

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And finally, our gratitude goes to all the employers who participated in the survey and shared their insight and expertise with the public higher education sector.

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*Higher Education South Africa
&
The South African Qualifications Authority*

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BEN PARKER

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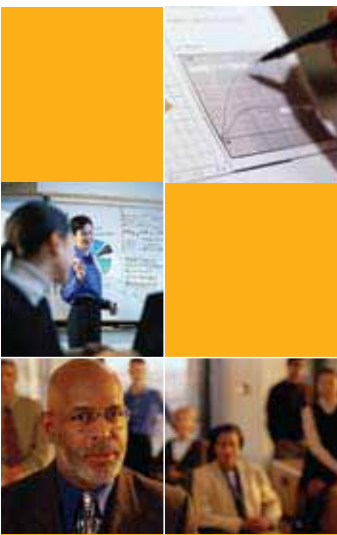
This publication was one of Professor Ben Parker's last contributions to education in his tireless commitment to the transformation thereof, in South Africa.

Professor Parker was the Director of Research at the South African Qualifications Authority (SAQA) and a visiting Associate Professor in the School of Education at the University of the Witwatersrand. Prior to this he was a Senior Researcher at the Centre for Education Policy Development, Executive Dean of Education at the University of Fort Hare, Professor of Ethics, and Professor and Head of the School of Education at the University of KwaZulu-Natal. During 1999 and 2000 he was seconded to the national Department of Education in the position of Director: Higher Education Colleges and Teacher Education Programmes, where he assisted with the development of the Norms and Standards for Educators and the incorporation of colleges of education into higher education. In 2001 and 2002, he served as a member of the Ministerial Study Team to review the implementation of the National Qualifications Framework. In 2004 and 2005, he was Chairperson of the Ministerial Committee on Rural Education.

In the short time that Professor Parker was with SAQA, he substantially revised SAQA's research agenda to build the Authority's capacity to do longer-term evidence-based research. He was instrumental in building partnerships with universities and other research institutions to ensure quality research.

Ben was an authentic person in all that he did and accomplished. He will be sorely missed by the education community.

This work is dedicated to the memory of Professor Ben Parker.



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Executive summary

1. It has long been the case that higher education and the work-place share a common misunderstanding about the role of each other. Employers sometimes voice concern over the quality of graduates exiting from universities while higher education feels that employers are not fully appreciative of what qualities and skills these graduates do possess. Higher Education South Africa (HESA) undertook this study in order to obtain a more accurate picture of graduate attributes and the way that these are perceived by the work-place.
2. While the role of higher education in human capital development and economic growth is not a new phenomenon, there is little doubt that the Joint Initiative for Priority Skills Acquisition (JIPSA) — embedded within the framework and goals of accelerated and shared growth — provided additional impetus for the study on “graduate attributes” and “employability” reported on here.
3. Articulation between higher education and employment in the work-place has been a focus of government initiatives in many countries. There is pressure on higher education from both government and employers to produce graduates who are employable in the sense that they have the attributes, capabilities and dispositions to work successfully.
4. Earlier conceptions that relied on lists of ‘key generic skills’ have given way to more nuanced approaches, which emphasise practical skills, understandings, personal attributes and metacognition.
5. Two central assumptions underpinned the study’s focus on the quality of graduates produced by public higher education institutions in South Africa:
 - a that the knowledge, skills, competencies and values of new graduates (the combined “graduate attributes” that are a necessary pre-condition for a graduate to have achieved ‘employability’) may be out of sync with the needs and expectations of employers; and
 - b that the notion of skills may need to be redefined within the context of a changing world of work. Anticipating that the study would need to shed light on what appears to be different positions with regard to the skills needs of employers and the role of higher education, HESA was mindful of a position frequently taken: higher education is expected to do better and more, not only in terms of the quality of graduates produced, but also in relation to the number and type of graduates produced within specific fields of study.
6. The study thus focused on two main issues: a) what employers expect; and b) their evaluation of what they currently get. In different terms, the questionnaire was structured to focus on:
 - a The attributes employers consider important and expect graduates to have when they enter the workplace.
 - b The degree to which graduates from South Africa’s public higher education institutions demonstrate these attributes.
7. Highlights from the outcomes of the study illustrate the following:
 - a Employers value the conceptual foundation, knowledge and intellectual approach to tasks produced by higher education.
 - b There may be more of a common language between higher education and employers than is generally perceived.
 - c The research makes it clear that there is a real need to address gaps between employer expectations and higher education outcomes; this has largely to do with proactive *task-directed engagement and the application of knowledge*.
 - d A degree of realism will need to be sustained on both sides, about how far higher education can be expected to “bridge the gap”, and the role that only employers can play in providing on-the-job learning and continuing development.
8. Although a baseline study, the report already points to the need for more innovative ways in which higher education and business can work together to create a seamless interface between these two crucial sectors of society.

Context & Overview

This document engages with the outcomes of a baseline study undertaken by Higher Education South Africa (HESA) as the leadership organisation of the 23 public higher education institutions in South Africa. The purpose of the pilot survey was to take stock of the views and expectations of employers and their evaluation of the quality of graduates produced by our higher education institutions. It was hoped that the outcomes of the study would provide useful data to inform debate and engagement with industry, and further, to establish an empirical benchmark against which to conduct periodic future reviews.

Human capital development and the role of higher education in contributing to economic growth and societal progress is certainly not a new phenomenon. In the South African context, in particular, there is little doubt that the Joint Initiative for Priority Skills Acquisition (JIPSA) has served as a powerful catalyst in bringing into renewed focus skills needs of the economy and the role and contributions of higher education in this regard. Given the pressing needs of the economy, the notion of a “skills revolution” has been variously expressed, and notably by the former Deputy President in her quest to mobilise collective high-level support for priority skills development:

The phenomenon of unemployed graduates, who are without abilities to self-employ and self-determine, after spending three to four years of post secondary education is an indication to all of us of the challenge in our education at a tertiary level...the curriculum developers are not paying enough attention to issues of relevance and ensuring that we all pay attention to the skills and competencies learners require when they come out of higher education... we need a skills revolution in the curriculum of tertiary education. (Mlambo-Ngcuka, 2006)

Indeed, the expectation is for higher education to engage proactively with the skills needs of the economy, and simultaneously, to address —through research, knowledge generation and innovation — the many pressing imperatives that constrain South Africa as a developmental state and young democracy. Moreover, in light of the global economic crisis that was precipitated in 2008, it is even more important that South Africa can produce even more skilled graduates who are able to compete within a shrinking global work force¹.

The higher education sector has, at the same time, been characterised by major changes; ranging from the implementation of policy frameworks and regulatory mechanisms deliberately developed to steer the transformation of the sector, to the radical restructuring of the landscape and a reduction in the number of public higher education institutions, from 36 to 23, made up of 11 universities, six comprehensive universities and six universities of technology. While the identities of these new types of institutions have yet to stabilise, the expectation is that each institution will develop particular niche areas of expertise within a differentiated landscape in order to engage appropriately with the challenges of our time.

¹ The UK research group High Fliers anticipate that the intake of new graduates will be cut by 17% in 2009. Available at <http://www.highfliers.co.uk/download/GraduateMarket09.pdf>

It is within this broad frame that this particular empirical study was planned and located, embedding the notions of “skills” and “employability” within the following contextual layers:

- The interface between higher education and the world of work and the challenges related to system alignment.
- The current pressing skills needs of the economy and society at large.
- The reality of a 21st century knowledge-driven world that compels higher education to produce graduates who can usefully and productively compete and participate in an increasingly globalised world and economy.

At the same time, HESA was mindful that it has become common cause for employers to express concern about the gap between the outcomes of higher education (in terms of quality, type and quantity of graduates), and the needs of the economy (Yorke 2006: 10, Harvey 2001).

The scope of this study is perhaps more modest and focused only on the *quality* of the graduates produced by the public higher education institutions in South Africa as perceived by employers. The type and quantity of graduates produced by higher education have been described comprehensively in the report “Trends in Public Higher Education in South Africa: 1995 to 2004” (SAQA, 2007). Identifying the needs of the economy and the labour market is a highly complex process, which lies beyond the scope of this report. The most recent comprehensive analysis of the needs of the economy and labour market is contained in the “Human Resources Development Review 2008” (Kraak & Press, 2008). This study should be seen as complimenting these more comprehensive reports through a small tightly focused investigation of one aspect of quality – employers’ perceptions of the *relevance* of the skills graduates bring to the workplace. In a sense, the study seeks to provide a reasonably accurate voice of employers in a language that speaks to the academy.

Two central assumptions underpinned the study:

- First, that the knowledge, skills, competencies and values (combined to represent “graduate attributes”) developed by higher education may in varying degree be out of sync with the needs and expectations of employers and, at the same time, with the demands of a rapidly changing world of work.
- Secondly, and related, that the notion of “skills” may need to be redefined in order to align the responsibilities of higher education with the possibilities of new and changing forms of labour and the application of knowledge.

A view often expressed, and indeed with some frustration within higher education circles, is that what employers want are job-related skills and, as universities are clearly not “HRD factories”, employers must appreciate the distinct role and mandate of higher education with regard to that which can be delivered. In different terms, it was anticipated that the study would shed some light on what appears to be different positions with regard to the skills needs of graduates required by employers and the role of higher education.

It was also important to take cognizance of a common perception variously expressed in different contexts; i.e. that the “bottom line” is that higher education is expected to do better and to do more, not in terms of a narrow reductionist view regarding preparing graduates for employment, but importantly, in terms of the numbers, type and quality of graduates required to meet societal and economic demands².

Given the focus of this baseline study on the quality of graduates, the questionnaire was structured to generate data on the following:

- The attributes employers consider important and expect graduates to have when they enter the workplace.
- The degree to which graduates from South Africa’s public higher education institutions demonstrate these attributes.

In addition, the questionnaire focused on the profile of individual respondents and the organisations they represented, as well as their views as senior employers with regard to the quality and standards of higher education in general.

² This paraphrased from the comment by Glen Fisher in his capacity as discussant at the HESA-SAQA Think Tank held on 15 November 2007 to engage with the first-level analysis of data generated in the survey.

A brief overview of graduate attributes and employability

The interface between higher education and the world of work has been variously conceptualised and studied, perhaps with the role of higher education in human capital development having taken precedence, given the centrality of human capital development to theories on productivity and economic growth (HESA 2007, Harvey, Locke, & Morey 2002). Yet we are also reminded that the relationship between higher education and economic growth is neither straightforward nor causal, but complex and conditional (Wolf 2002 in Kruss 2004). In synergy with theories on development, and at the level of graduate attributes expected by employers, it is important to note the shift away from earlier notions of preparing graduates for *employment* to the concept of *employability* (cf. Kruss 2004, Harvey 2001, Yorke 2006), and what it means to be a higher education graduate, or “*graduateness*”³ in the South African context, the latter particularly so in the context of sweeping societal changing over the past decade and more.

In the 1990s, a number of countries undertook initiatives which produced lists of skills that were seen as essential aspects of employability, often described as *core, key or generic* skills (Harvey & Green 1994)⁴. For example, the Mayer Report (Mayer 1992) and the Finn Report (Australia) (Finn 1991), the Dearing Report (UK) (Dearing 1996) and, The Secretary’s Commission on Achieving Necessary Skills (US) (SCAN 2000).

Mayer (1992:13) describes what was common to these initiatives:

In each case the initiatives have resulted in a set of statements about skills/ know-how competencies which are:

- not specific to any particular subject area, educational programme, qualification or awarding body, not to any specific vocational task or career path, but which focus on generic attributes that can be learned through formal processes and that apply generally to working life;
- common to both general education and vocational education and training;
- concerned with outcomes, in each case defined as precisely as possible with various levels to indicate the variety of individual attainment.

A common theme running through these reports is that skills are transferable or that there was a set of generic skills within graduates. In the process of implementing the recommendations of these reports, it soon became clear that a distinction needed to be drawn between context-dependent and context-independent skills (Bridges, 1993) and there was increasing recognition of the importance of situational understandings (Hinchliffe, 2002). Current international literature suggests that these initiatives and their concomitant lists were too simplistic and that employability is a far more nuanced and complex notion (Harvey et al. 1997). Broadly, there has

³ Discussions with Narend Bajjnath, Vice-Principal: Strategy, Planning & Partnerships, UNISA, regarding a study conducted at that institution.

⁴ In South Africa, the advent of the NQF in the mid-1990s saw the emergence of the term ‘critical cross-field outcomes’ to indicate a similar set of skills. This report does not address the conceptualisation or the impact of this approach.

been a shift over the last twenty years from approaches that identified lists of specific skills in a fairly *ad hoc* and piecemeal way to more holistic and cognitively grounded approaches focused on the capabilities and dispositions of graduates and particularly the ability of graduates to learn and continue learning in the work place. For example, Yorke suggests that:

...employability goes well beyond the simplistic notion of key skills, and is evidenced in the application of a mix of personal qualities and beliefs, understandings, skilful practices and the ability to reflect productively on experience...in situations of complexity and ambiguity. (Yorke 2006: 13)

Employability is influenced, in the main, by four broad and inter-related components: skillful practices (communication, management of time, self and resources, problem-solving and lifelong learning); deep understandings grounded in a disciplinary base (specialised expertise in a field of knowledge); efficacious beliefs about personal identity and self-worth; and, metacognition (self awareness and the capability to reflect on, in and for action) (Yorke and Knight 2006: 5)⁵. It is this 'deep' notion of employability that has been embraced within this study.

This is evident in the careful scaffolding of attributes in the questionnaire and the use of two forms of analysis, gap analysis and principal component analysis, which when used together enable us to add another layer to our interpretation of the data to represent graduate attributes and employability in a sophisticated manner.

The study focused on a broad category of recent graduates who, in the main, obtained undergraduate qualifications, ranging from certificate, diploma and degree studies to honours qualifications, excluding Master's and PhD qualifications. At the level of undergraduate programmes, there has traditionally been a mix between direct and indirect links with industry and the knowledge, skills and competencies developed by higher education institutions. Universities of Technology have typically focused on vocationally-orientated diploma programmes with work-integrated learning as a compulsory component of qualifications, while universities have, in the main, been known for their undergraduate "foundational" degrees in the broad fields of the humanities and sciences. However, professional degrees have straddled the divide between direct and indirect links with future career trajectories. In addition it is to be expected that the nature of "graduateness" is also in the process of changing in relation to an increasingly knowledge-driven world.

⁵ In South African discourse, this set of components is similar to the notion of applied competence.

The Study: Method

There are a number of methodological approaches to the study of graduate attributes and quality with surveys and questionnaires representing one approach. Perhaps the most important limitation is that questionnaires as a survey tool are better suited to specific areas of investigation and do not allow for an in-depth analysis of the meaning of issues or phenomena (Harvey *et al*, 1997). However, as a quantitative tool, there are also distinct advantages in terms of the possibility of revealing trends and patterns in responses through powerful statistical analyses. In turn, this starting point provides a useful empirical baseline for further studies, as well as initiating in-depth debate on the interpretation and use of data to inform follow-up action.

Even though the study was a baseline pilot study, and therefore not intended to be definitive, this does not signal a weakness in the design or execution of the questionnaire. It is worth highlighting that the questionnaire was benchmarked against similar studies undertaken in the United Kingdom and elsewhere (*cf.* Harvey & Green 1994; Harvey 2000; 2001), as well as adapted from an earlier national survey undertaken by the then University of Natal (Griesel 2003). There was therefore a considerable degree of confidence that the questionnaire's constructs were relatively stable, while care was taken to adapt specific aspects to the current South African context. The four framing categories of attributes utilised in the earlier study were kept intact for comparative purposes over time:

1. Basic skills and understanding:

Do graduates display the necessary “know-how” to meet workplace expectations (i.e. can they “hit the ground running”)?

2. Knowledge and intellectual ability:

Do graduates display intellectual ability and sufficient conceptual depth to perform well?

3. Workplace skills and applied knowledge:

Do graduates demonstrate an appropriate approach and applied competence to workplace tasks?

4. Interactive and personal skills:

Do graduates have a sense of self in relation to (changing) workplace contexts and practices?

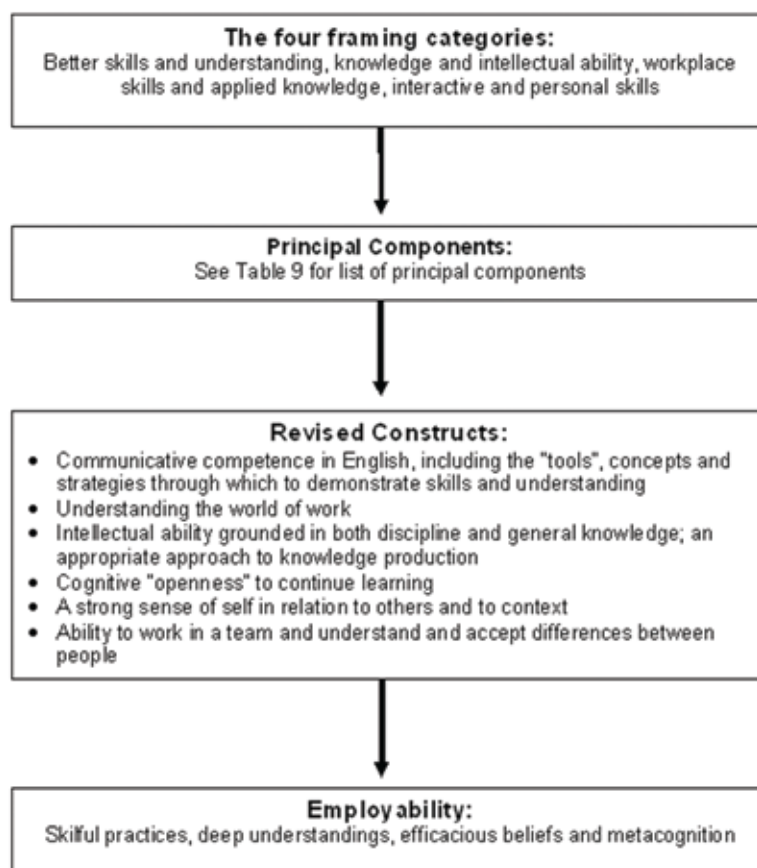
In addition, the questionnaire was designed to make possible the triangulation of data through the use of open-ended questions, as well as data generated in a juxtaposed section. In hindsight, these additions were, in fact, unnecessary as the clustering of attributes seemed to have been sufficiently robust to yield incisive results.

When interpreting the data, we have layered our interpretation at four levels; each level represents a shift to a higher level of construct abstraction within similar broad categories. Each level is of equal value in providing different perspectives on the data. In this study, the empirical data was analysed at the first two levels (the four framing categories and the principal components), on the basis of which a third level was extrapolated through revision of the constructs. The fourth level, the holistic notion of employability, is put forward as a useful summative concept which emerges logically from this research and resonates with concepts that have emerged in the international literature.

⁶ In order to ensure the integrity of the instrument and research process, critical readers provided important feedback on the questionnaire and participated as a reference group in an internal seminar to consider the 1st level analysis of data, as well as the methodology adopted in the survey.

Figure 1 shows this movement from the most grounded level (the original framing categories described above) to the most abstract level (employability):

FIGURE 1
Four levels of interpretation



Before turning to the outcomes of the survey, the following further comment on methodology and the sample used in this pilot study:

- The sample was drawn from the employer databases of the South African Graduate Recruitment Association (SAGRA) and the Southern African Society for Cooperative Education (SASCE), as well as a database from the Department of Trade and Industry (dti) to achieve a proportional balance between small, medium and large organisations.
- In order to ensure the collection of quality data, organisations were requested to identify a senior member of staff who could accurately reflect on the quality of recent graduates and the expectations of employers. Appointments were made for telephonic interviews and an electronic copy of the questionnaire was sent prior to the interview as reference. In a few instances, organisations preferred to have face-to-face group interviews, or to self-complete the questionnaire electronically.
- The focus was on public higher education and all graduates who have recently entered the workplace, excluding those with qualifications at the post-graduate levels of Master's and PhD degrees. Given a weighting towards professional and technological work in the sample of employers, there is a similar emphasis given to science, engineering and technology (SET) graduates.
- Close articulation between SET curricula, pedagogic and assessment practices and work may have narrowed the gap between employer expectations and what they get. This highlights the relevance of the gaps that do remain and suggests that the alignment between work and other disciplines may be weaker still.
- The sample of employers was drawn from the private sector and does not reflect the perceptions of employers in the public sector.

Results

A total of N=99 employers responded to the questionnaire. While the questionnaire yielded rich and detailed results, the intention here is to focus on data generated in employers' response to attribute clusters. This approach is intended to give substance to a richer notion of graduate attributes that will be useful as a catalyst for debate and will encourage further critical scrutiny of the constructs.

1. Profile of organisations and respondents

To contextualise employers' views, Figures 1 and 2 below present an overview of the profile and relative size of organisations who participated in the survey. This is followed by a brief description of respondents' profile per age, gender and population group.

FIGURE 2
Percentage of Sample organisations per employment sector

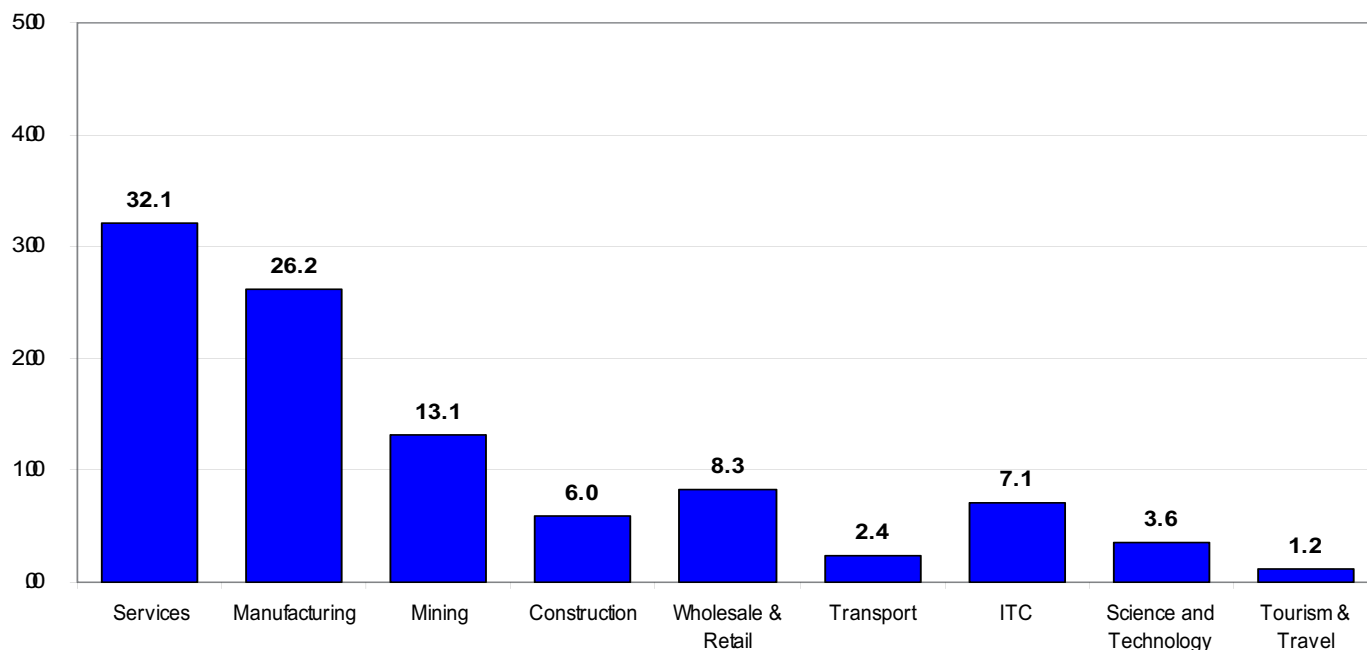
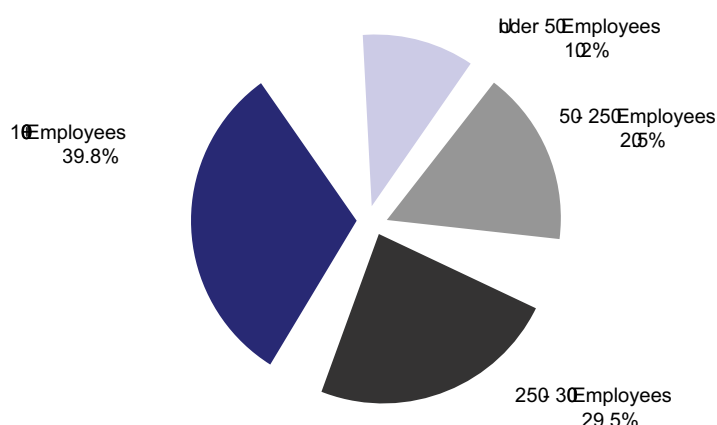


FIGURE 3
Organisational Size: % of Organisations per Category



It is interesting to note that two thirds of respondents were female (66.3%) and 33.7% male, with the majority falling in the age group 31-40 years (44.5%), and 29.5% younger than 30 years, 17% between 41-50 years, and 8% older than 51 years⁷. In terms of population group representation, 51.7% was white, 40.4% black African, 4.5% coloured and 3.4% Indian/Asian.

2. Attribute clusters: gap and principal component analyses

Employers were asked to rate attributes in terms of a) their evaluation of the performance of recent graduates (“what they get”); and also, b) their expectations reflected in their rating of the importance of attributes. The four framing categories (basic skills and understanding, knowledge and intellectual ability, workplace skills and applied knowledge, interactive and personal skills) are presented below.

Basic skills and understanding

The assumption was that in order to “hit the ground running”, employers would expect graduates to have a set of basic communication skills and understanding of the workplace (or “knowing-how”) to function effectively. Table 1 below summarises employers’ rating and highlights the specific skills and understanding where there is a significant gap between what graduates bring to the workplace and employers’ expectations.

TABLE 1:
Employers’ rating of the quality and importance of attributes associated with basic skills and understanding

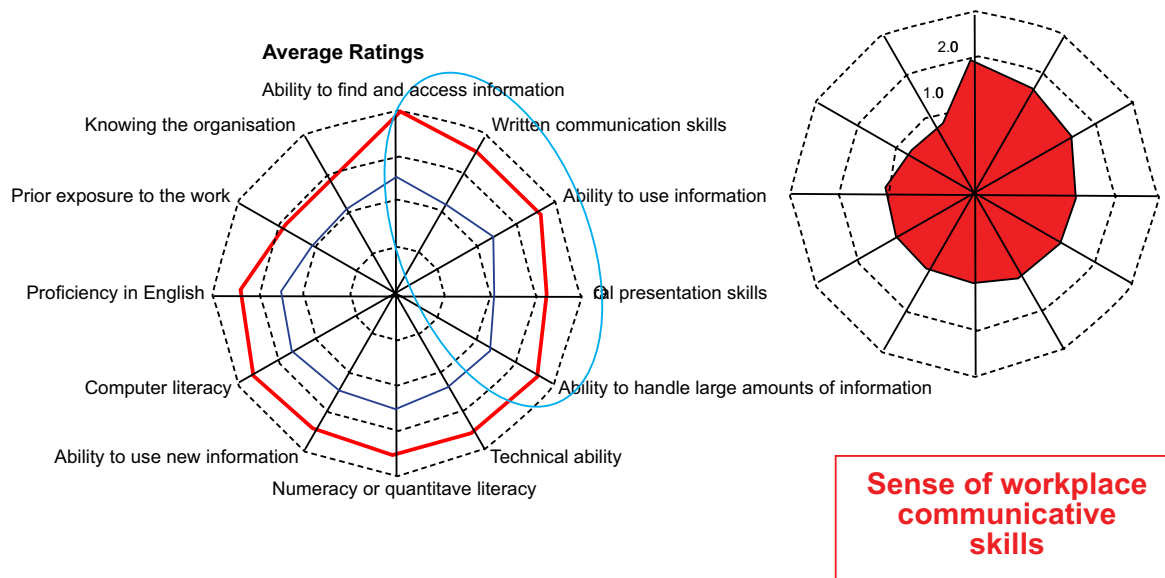
Attribute	Satisfaction rating “what you get”	Importance rating “what you expect”	GAP
Ability to find & access information	3.5	5.0	1.45
Written communication skills	3.2	4.5	1.34
Ability to use information	3.4	4.6	1.23
Oral presentation skills	3.1	4.3	1.20
Ability to handle large amounts of information	3.4	4.5	1.17
Technical ability	3.3	4.4	1.08
Numeracy or quantitative literacy	3.5	4.5	1.01
Ability to use new information	3.5	4.5	0.99
Computer literacy	3.6	4.6	0.99
Proficiency in English	3.5	4.4	0.98
Prior exposure to the work	3.0	3.8	0.81
Knowing the organisation	3.1	3.8	0.77

⁷ In comparison to the study undertaken in 2000 at the University of Natal, this represents a distinct shift to a larger proportion of women representing senior management positions in their organisation, and at a relatively younger age than men, compared to seven years ago (cf. Griesel 2003).

Employers, in the main, rate what they get as less than what they expect. Figure 4 below illustrates the same data graphically; i.e. the gap between the expectations of employers and their evaluation of the basic skills and understanding which recent graduates demonstrate in the workplace. This approach in the design of the survey instrument allowed for the survey data to be analysed in terms of the basic principles of the Parasuraman Gap Analysis Model of service quality (Parasuraman et al. 1988).

The biggest gap relates to the “ability to find and access information” and this attribute is also rated as the most important, grouped with “written communication skills” and the “ability to use information”.

FIGURE 4
Basic skills and understanding:
Analysis of the gap between employer satisfaction and expectation



While this kind of analysis is certainly useful, it remains one-dimensional and based on response averages, and therefore cannot point to the underlying factors (or “drivers”) which make employers prioritise certain attributes above others. Below we turn to the statistical procedure known as “principal component analysis” in an attempt to uncover the “structure” or underlying factors that “drive” employers’ responses. Principal component analysis (Darren & Mallery 2006) is a technique used to capture variance in a dataset in terms of a set of principal components. In effect, principal component analysis summarises the most important parts of the data whilst filtering out “noise”. In this context, the analysis was applied to employer expectation ratings in order to determine which set or sets of attributes could be grouped together based on the *rating patterns of employers* and would represent what they regarded as the principal components of graduate attributes.

The following principal components (or principal groups of attributes) could be extracted and ranked in terms of the proportion of variation each explained. By ranking the patterns in terms of their strength in explaining the data, a different order of priority is revealed. Where the gap analysis and principal component analysis correspond, there is a deeper level of misalignment than may appear from the list in the gap analysis. Where the gap analysis and principal component analysis do not correspond, the misalignment indicated in the gap analysis may be more apparent than real and employer expectations and higher education outcomes may be aligned more closely than expected. In this study, it’s the latter outcome that comes to the fore, leading to the possibility that employers and higher education may be closer to each other than is generally accepted. In order to provide some substance to this notion, each of the principal component analysis tables has a column for revised constructs, which offer descriptions at the level of the cluster, the principal components.

This is an attempt to move beyond 'lists of skills' to more holistic descriptions that reflect the complex integration of attributes, of capabilities and dispositions, which make a person employable.

It is important to note that in addition to rating specific attributes in terms of expectations and levels of satisfaction, open-ended questions gave employers the opportunity to put their ratings in context by means of examples of their experiences in the workplace. The intention with adding this qualitative component to attribute assessments was two-fold:

- To determine whether the questionnaire failed to identify specific attributes that employers regarded as important in the workplace, as well as
- To gain a deeper understanding and insight into the reasons for employer ratings of graduate attributes.

Interpretation of this qualitative component indicated that there were no graduate attributes identified by employers that the questionnaire failed to take into account. Employers utilised open-ended questions to give context to their ratings rather than to provide additional information on additional graduate attributes that should have been taken into account by the questionnaire.

TABLE 2:
Basic Skills & Understanding: Principal Component Analysis

Ranked components	Revised constructs
Component 1: <ul style="list-style-type: none"> • Proficiency in English • Written communication skills • Oral communication skills 	Communicative competence in English, including the "tools", concepts and strategies through which to demonstrate skills and understanding
Component 2: <ul style="list-style-type: none"> • Prior exposure to work • Knowing the organisation 	Understanding the world of work
Component 3: <ul style="list-style-type: none"> • Technical ability • Computer literacy 	
Component 4: <ul style="list-style-type: none"> • Ability to find and access information 	

This indicates that the employers regarded communicative competence in English, ICT skills and an understanding of the world of work as the most important aspects of the basic skills and understanding dimension of graduate attributes. Based on the findings of the gap analysis which indicated significant gaps in terms of communicative and ICT skills, it seems that in terms of what employers regard as the most important components of *basic skills and understanding attributes*, higher education institutions are not aligned with their expectations.

Instead of considering the ranked components as a linear list of re-labelled attributes, it is important to view the components as parts of a hierarchical "web" of knowledge, skills and competencies which render graduates effective in the workplace. What appeared to be the prioritisation of finding and accessing information is dependent on a more complex hierarchy of expectations reflecting an understanding of contingent cognitive dependencies – finding and accessing information is dependent on proficiency in English, communication and ICT skills. Component 2, in comparison to Component 4 has a weaker dependency in relation to Components 1 and 3. However, its presence indicates the importance of the ability to learn quickly from workplace experience as a key aspect of employability. The initial list of skills can thus be revised into a more complex multi-faceted construct.

Knowledge and intellectual ability

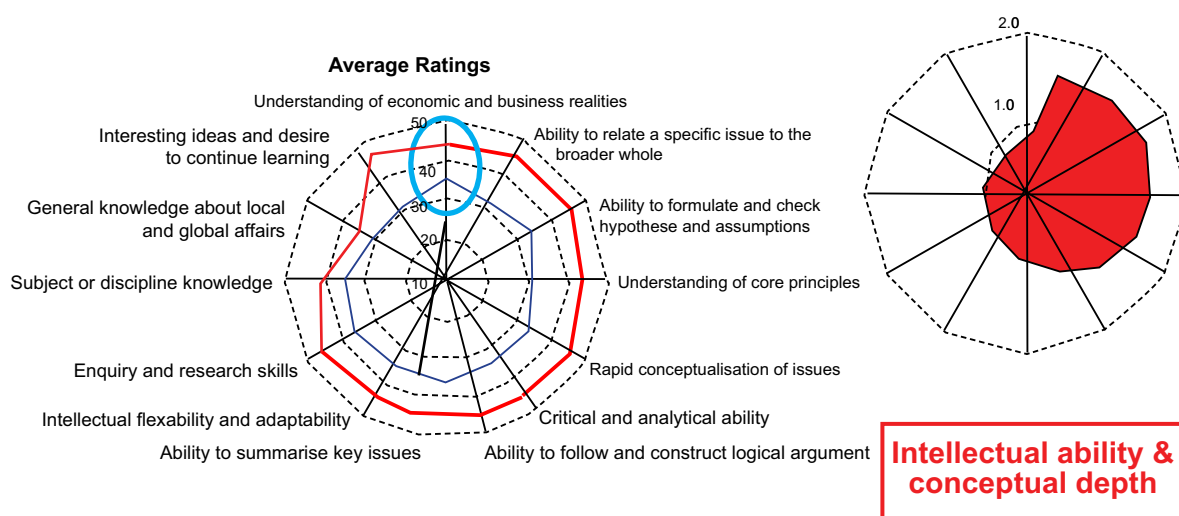
The main assumption here was that graduates need to have consolidated their intellectual ability and knowledge foundation (knowing-that) in order to engage effectively with workplace demands and benefit from workplace opportunities. Table 3 below summarises employers' rating and highlights the attributes considered most important and those where there is a significant gap between the quality of graduates and the expectations of employers.

TABLE 3:
Employers' rating of the quality and importance of attributes associated with knowledge and intellectual ability

Attribute	Satisfaction rating "what you get"	Importance rating "what you expect"	GAP
Understanding of economic and business realities	2.9	4.2	1.34
Ability to relate a specific issue to the broader whole	3.2	4.3	1.17
Ability to formulate and check hypotheses and assumptions	3.1	4.2	1.15
Understanding of core principles	3.3	4.4	1.14
Rapid conceptualisation of issues	3.2	4.3	1.13
Critical and analytical ability	3.3	4.4	1.13
Ability to follow and construct logical arguments	3.2	4.4	1.12
Ability to summarise key issues	3.2	4.3	1.11
Intellectual flexibility and adaptability	3.3	4.4	1.10
Enquiry and research skills	3.2	4.3	1.03
Subject or discipline knowledge	3.5	4.5	0.95
General knowledge about local and global affairs	3.0	3.9	0.86
Interest in ideas and desire to continue learning	3.8	4.6	0.79

The same data are illustrated graphically in Figure 5 below: the only significant gap between the expectations of employers and their evaluation of recent graduates relates to graduates' "understanding of economic and business realities". This suggests that in what many would regard as higher education's core business, knowledge and intellectual ability, the sector is fairly adept at meeting the expectations of employers. The one area of lack points again to the value of understanding the workplace and being able to learn quickly from workplace experience as key attributes required for employability.

FIGURE 5
Knowledge and intellectual ability:
Analysis of the gap between employer satisfaction and expectation



It is also interesting to note that the most important attribute for employers is “interest in ideas and desire to continue learning”, and that this shows the smallest gap between what higher education delivers and what is expected (and valued) by employers. This suggests that employability is a moving target, which requires a desire to be a lifelong learner, and that, in the main, higher education graduates do display this disposition; higher education and employers are fairly well aligned in this aspect of employability.

This alignment is confirmed by principal component analysis, which reveals the following attribute clusters or components that were extracted and ranked in terms of the degree of variation explained:

TABLE 4:
Knowledge & Intellectual Ability: Principal Component Analysis

Ranked components	Revised construct
Component 1: <ul style="list-style-type: none"> Ability to follow and construct logical arguments Rapid conceptualisation of issues 	Intellectual ability grounded in both discipline and general knowledge and an appropriate approach to knowledge production, and cognitive ‘openness’ to continue learning
Component 2: <ul style="list-style-type: none"> Understanding core principles 	
Component 3: <ul style="list-style-type: none"> General knowledge about local and global affairs Subject/discipline knowledge 	
Component 4: <ul style="list-style-type: none"> Interest in ideas and desire to continue learning 	

Again, as commented above, instead of considering the above as a linear ranking of attributes, it is important to view the components as a multi-dimensional web of attributes that enable graduates to demonstrate — and extend — their intellectual ability and knowledge in the workplace. Integrating the results of the survey in terms of the principal components and most significant gaps regarding knowledge skills and intellectual ability attributes, it seems that higher education institution outcomes and employer expectations were fairly well aligned.

Workplace skills and applied knowledge

The central assumption here was that graduates would need to make the shift between “theory” (or the study of a discipline or profession) and the “practice” of working. Table 5 below summarises employers’ rating of attributes, highlighting those considered most important and the gap between reality and expectations.

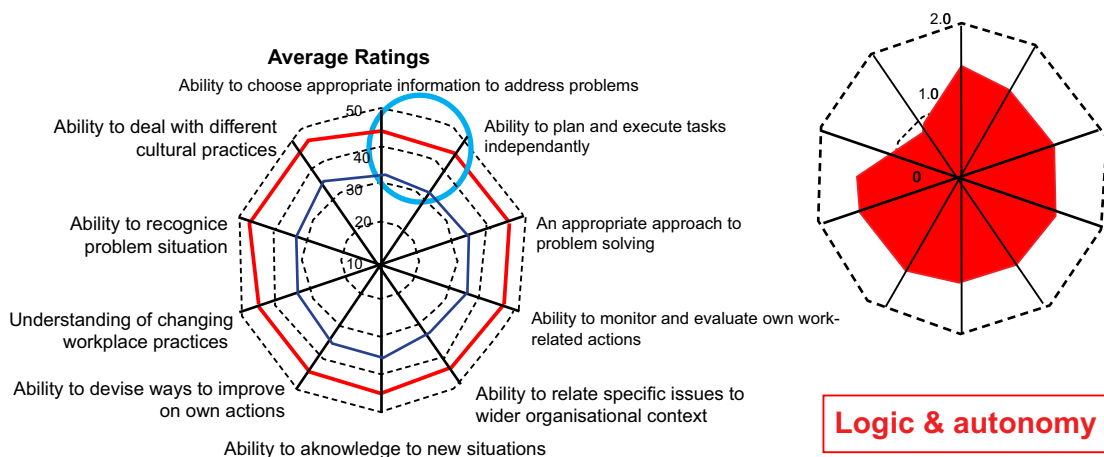
TABLE 5:
Employers’ rating of the quality and importance of attributes associated with workplace skills and applied knowledge

Attribute	Satisfaction rating “what you get”	Importance rating “what you expect”	GAP
Ability to choose appropriate information to address problems	3.1	4.5	1.42
Ability to plan and execute tasks independently	3.1	4.5	1.41
An appropriate approach to problem solving	3.2	4.6	1.35
Ability to monitor and evaluate own work-related actions	3.2	4.5	1.32
Ability to relate specific issues to wider organisational context	2.9	4.3	1.32

Attribute	Satisfaction rating “what you get”	Importance rating “what you expect”	GAP
Ability to apply knowledge to new situations	3.3	4.6	1.31
Ability to devise ways to improve on own actions	3.2	4.5	1.30
Understanding of changing workplace practices	3.1	4.4	1.27
Ability to recognise a problem situation	3.3	4.5	1.24
Ability to deal with different cultural practices	3.5	4.4	0.90

It is interesting to note that it is with the relatively “hard” cognitive skills and proactive engagement where there is the biggest gap between expectations and the attributes displayed by recent graduates; i.e. “ability to choose appropriate information to address problems” and “ability to plan and execute tasks independently”. On the other hand, the smallest gap relates to graduates’ “ability to deal with different cultural practices”, suggesting that higher education does expose students to different cultures in positive ways. In the multi-cultural context of South Africa this is an important outcome of higher education. It also suggests that South African graduates are able to traverse different cultural settings and in so doing prepares them well not only for South African working conditions but for global mobility. Figure 5 below illustrates the gap analysis performed on the responses of employers.

FIGURE 6
Workplace skills and applied knowledge:
Analysis of the gap between employer satisfaction and expectation



It is perhaps unsurprising that the construct of workplace skills and applied knowledge reveals a larger overall gap between what is expected and what attributes are achieved than in the other constructs and understandable that higher education finds it difficult to impart these skillful practices and applied knowledges, which are work based rather than discipline based.

However, principal component analysis foregrounds different factors or dimensions for understanding the rating of employers with regard to priority attributes and their evaluation of graduates:

TABLE 6:
Workplace Skills & Applied Knowledge: Principal Component Analysis

Ranked components	Revised construct
Component 1: <ul style="list-style-type: none"> • Ability to deal with different cultural practices • Understanding of changing workplace practices 	A proactive approach to problem-solving, located within a context of cultural diversity and changing workplace practices
Component 2: <ul style="list-style-type: none"> • Ability to recognise a problem situation • Ability to choose appropriate information to address problems • An appropriate approach to problem-solving tasks 	

Although the gap analysis indicates a large gap between employer expectations and attributes achieved, the principal component analysis signals that higher education institution outcomes and employer expectations were not completely unaligned as there was only a partial overlap in terms of principal components and the gaps identified. Although recent graduates were not meeting employer expectations in terms of planning and executing tasks independently and using appropriate information, they did meet expectations in terms of other principal components identified – i.e. in terms of *“understanding diversity and changing workplace practices”* and a *“proactive approach to problem solving”*.

Personal and interactive skills

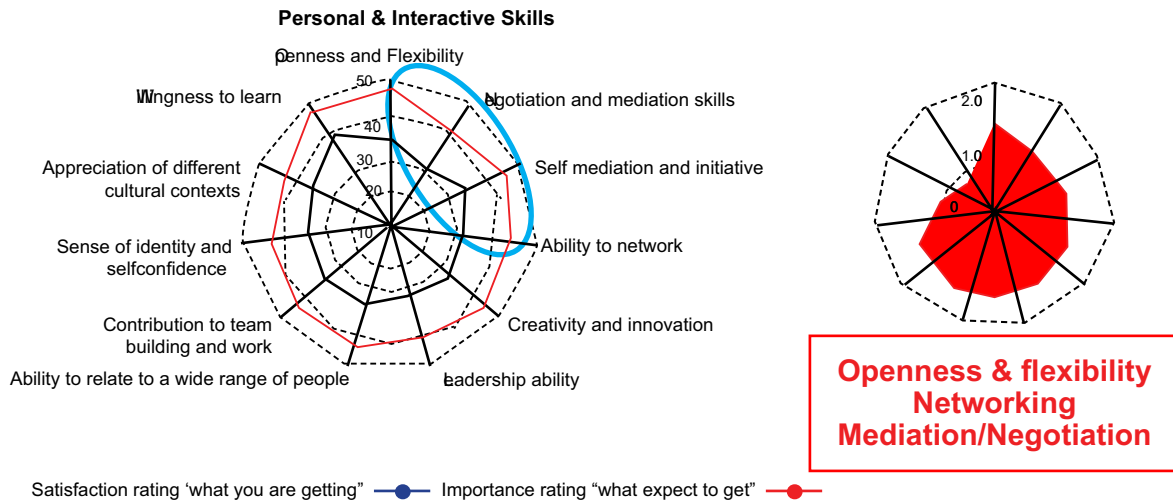
The fourth and last category of attributes relates to person-in-context. The assumption underpinning the clustering of attributes is that changing workplace practices will demand of graduates flexibility and adaptability. Table 7 below summarises employers' rating of attributes and the performance of recent graduates.

TABLE 7:
Employers' rating of the quality and importance of attributes associated with personal and interactive skills

Attribute	Satisfaction rating “what you get”	Importance rating “what you expect”	GAP
Openness and flexibility	3.4	5.0	1.60
Negotiation and mediation skills	2.9	4.3	1.36
Self-motivation and initiative	3.4	4.7	1.30
Ability to network	3.1	4.4	1.26
Creativity and innovation	3.2	4.5	1.22
Leadership ability	3.2	4.3	1.12
Ability to relate to a wide range of people	3.4	4.5	1.09
Contribution to teambuilding and work	3.5	4.5	1.01
Sense of identity and self-confidence	3.4	4.4	0.97
Appreciation of different cultural contexts	3.5	4.3	0.87
Willingness to learn	4.0	4.7	0.75

The biggest gap relates to “openness and flexibility” and the smallest—and an attribute also highly valued by employers—“willingness to learn”. Figure 7 below illustrates the gap analysis.

FIGURE 7
Personal and interactive skills:
Analysis of the gap between employer satisfaction and expectation



In turn, principal component analysis reveals the following hierarchy in employer responses:

TABLE 8:
Personal & Interactive Skills: Principal Component Analysis

Ranked components	Revised construct
Component 1:	
<ul style="list-style-type: none"> Sense of identity and self-confidence Negotiation and mediation skills 	A strong sense of self in relation to others and to context
Component 2:	
<ul style="list-style-type: none"> Contribution to teambuilding and work Ability to relate to wide range of people Appreciation of different cultural contexts 	Work in a team and understand and accept differences between people
Component 3:	
<ul style="list-style-type: none"> Openness and flexibility 	

Higher education seems to be fairly well aligned with the expectations of employers as there was only a partial overlap in terms of principal components and the gaps identified. Although recent graduates did not seem to meet expectations in terms of a *“sense of self in relation to others”*, they are far closer in terms of an ability to *“work in a team and to understand and accept differences between people”*.

In summary, the combination of gap analysis and principal component analysis indicates that work and higher education may not be so far apart. In the main, the principal components do not correspond with the largest gaps in the initial ratings - suggesting that employer perceptions of the gap between higher education outcomes and their own expectations may differ according to the level of aggregation of attributes used in the analysis: the more aggregation, the smaller the gap.

The revised constructs provide a higher order description of employability than the original more fragmented constructs, which suggests that they may serve as a platform for better communication between higher education and employers. Although beyond the scope of this report, this does suggest that pedagogic, curricula and assessment practices that address employability should not be over-specified or fragmented, nor described as simplistic outcome statements.

Employability does not sit comfortably in a discrete module or unit standard, rather it is another perspective on the fitness of purpose of the curriculum. This suggests that improving graduate employability is an important aspect of quality development.

Table 9 provides a summary of principal components in relation to the expectation gap.

TABLE 9:
Summary of principal components of employer expectations

Principal Components	Revised constructs	Satisfaction rating “what you get”	Importance rating “what you expect”	Gap
Basic skills and understanding				
<ul style="list-style-type: none"> Proficiency in English Written communication skills Oral presentation skills 	Communicative competence in English, including the “tools”, concepts and strategies through which to demonstrate skills and understanding	4.4	3.3	1.10
Prior exposure to work Knowing the organisation	Understanding the world of work	3.7	3.0	0.70
<ul style="list-style-type: none"> Technical ability Computer literacy Ability to find & access information 		4.5	3.4	1.10
Knowledge and intellectual ability				
<ul style="list-style-type: none"> Rapid conceptualisation of issues Ability to follow and construct logical argument 	Intellectual ability grounded in both discipline and general knowledge and an appropriate approach to knowledge production and cognitive “openness” to continue learning	4.3	3.2	1.10
<ul style="list-style-type: none"> Understanding of corprinciples General knowledge about local and global affairs Subject or discipline knowledge 		4.2	3.2	1.00

<ul style="list-style-type: none"> • Interest in ideas and desire to continue learning 		4.6	3.8	0.79
Workplace skills and applied knowledge				
<ul style="list-style-type: none"> • Understanding of changing workplace practices 		4.4	3.1	1.27
<ul style="list-style-type: none"> • Ability to recognize a problem situation • Ability to choose appropriate information to address problems • An appropriate approach to problem solving 	A proactive approach to problem-solving, located within a context of cultural diversity and changing workplace practices	4.5	3.2	1.30
Personal and interactive skills				
<ul style="list-style-type: none"> • Sense of identity and self –confidence • Negotiation and mediation skills 	A strong sense of self in relation to others and to context	4.3	3.2	1.10
<ul style="list-style-type: none"> • Contribution to teambuilding and work • Ability to relate to a wide range of people • Appreciation of different cultural contexts 	Work in a team and understand and accept differences between people	4.5	3.5	1.00
<ul style="list-style-type: none"> • Openness and flexibility 		4.9	3.4	1.70

The revised constructs hint at further levels of interpretation. In one way or another, they depend on a graduate having the ability to learn in the workplace, in ways that are grounded in their institutional experience. How graduates learn how to learn in South African work places has not been a focus of research and yet, judging from employers' perceptions this deserves far closer scrutiny. South Africa's Higher Education Qualifications Framework (HEQF) with its explicit recognition of qualifications containing Work Integrated Learning and accommodation of recognition of prior informal and non-formal learning also signal the importance of better understanding the work place and work based learning. In other words, the concept of employability developed through this study looks not only towards curricula, pedagogic and assessment practices in higher education institutions but to counterpart learning practices in work places.

The area of least alignment is in the area of basic skills and understanding where our revised constructs suggest the most important graduate attributes are *communicative competence in English, including the "tools", concepts and strategies through which to demonstrate skills and understanding and understanding the world of work*. And the gap analysis indicates that this is also where the greatest gap between expectations and graduate outcomes is apparent. The other revised constructs, in varying degrees, signal closer alignment. This suggests that higher education and employers need to collaborate closely on the conceptualisation, design and implementation of Work Integrated Learning in ways that will articulate disciplinary knowledge with ways of learning in the workplace.

Discussion and Concluding Comment

Two central assumptions informed this baseline pilot study:

- That the knowledge, skills, competencies and values that higher education sets out to develop may in varying degree be out of sync with the immediate needs of employers, as well as the needs of a rapidly changing world of work.
- That the notion of “skills” may need to be redefined in order to align the responsibilities of higher education with the possibilities of new and changing forms of labour and the application of knowledge.

In both instances the survey signals that our common understanding of articulation between higher education and work may exaggerate difference, underscoring the need for engagement between employers and higher education about ways in which to “narrow the gaps”. It is suggested that this will entail developing a common understanding, in the first instance, of the *nature* of perceived gaps; and secondly, of ways in which the gaps can most effectively and creatively be addressed on both sides of the interface between higher education and the world of work. This requires scrutiny of work based and work placed learning and higher education institution based learning to understand better the forms of knowing and learning that are most appropriate and the curriculum, pedagogic and assessment practices that are most effective on both sides of the interface.

What also emerges clearly and unsurprisingly from the study is the importance of proficiency in English and communication and ICT skills for employability. In most countries an adequate foundation for these competences will have been laid in the schooling system before students enter into higher education. This study suggests that higher education needs to address the failure of the schooling system to lay this foundation in a far more systematic and thorough manner.

While it is fully recognised that this is a *pilot* study in an area in which a great deal more work needs to be done, it has been pointed out that it is valuable precisely for this reason. The issues canvassed in the study are complex and this brief preliminary analysis intentionally focused mainly on employers’ response to the clusters of attributes. Much more detailed analyses can be pursued, and through different analytic lenses. For example, it is important to also consider the perceptions of graduates, which has been conducted through the use of tracer studies and makes for a valuable tandem study to this one.

In summary, the following findings emerged:

- The analysis behind the study’s findings suggests that employers (as represented in this sample) have a much more complex and nuanced view of the role of higher education than higher education itself may give employers credit for; in different terms, employers and higher education may be misreading each others’ positions.

⁸ SAGRA has produced such a study soliciting responses from 1,435 graduates currently employed. The study is entitled The SAGRA Graduate Recruitment Survey 2008.

- The research makes it clear that there is a real need to address gaps between employer expectations and higher education outcomes; this has largely to do with proactive *task-directed engagement* and the *application of knowledge*, i.e. the issue of knowledge-in-use (see revised constructs in Tables 2, 4, 6 and 8).
- At the same time, it is clear that employers value the conceptual foundation, knowledge and intellectual approach to tasks produced by higher education.
- In turn, given that the research suggests that there may be more of a common language between higher education and employers than is commonly recognised, there is a very real opportunity to build strategically on the findings to promote dialogue and understanding, as well as more collaborative endeavours.
- In this regard, a degree of realism will need to be sustained on both sides, about how far higher education can be expected to “bridge the gap”, and the role that only employers can play in providing on-the-job learning and continuing development.
- Noting the political sensitivity of the issues, and the potential for a crass simplification of a complex set of problems, it has been pointed out that it is nonetheless essential to engage honestly and constructively with employer perceptions of quality across institutions; the issues need to be problematised and contextualised, certainly, but not swept under the carpet.

We must remain cognisant that this forms a baseline study that will need to be replicated on an ongoing basis in order to confirm perceptions and chart changes. However, the quantitative and qualitative dimensions clearly indicate that the gaps that do exist can only be closed through an awareness that there is a mutual responsibility on business, higher education as well as on the graduate. Although HESA and big business have long been involved in a range of conversations on areas of common interest, this study suggests that greater collaboration needs to occur to achieve a seamless flow between higher education and the work place. In particular:

- The study, presently underway at the Council on Higher Education (CHE), assumes increased relevance in the light of this study. The CHE investigation is considering the value of an extended four-year undergraduate degree. While the CHE study is exploring a number of possible modalities in this regard, the call from business to ensure that graduates have some kind of extended exposure to the work place while at university gains further resonance.
- The boundary between the university and business needs to become more porous. Before graduating, students need to have a clear idea of the expectations of their future employers. Presentations from business, companies building relationships with universities and dual appointments where higher education and business can ‘share’ experts are all ways of allowing for a greater interchange between business and higher education.
- In the qualitative responses there was a repeated call for a more formalised relationship between leaders in higher education and leaders in business. Some respondents called for the establishment of a Higher Education–Business Association that would be able to address these perceived gaps on an ongoing basis. Irrespective of the shape this assumes, a mechanism is required to ensure greater and more regular collaboration between the sectors.
- There is a need to increase a student’s career literacy while still at university. These cover a multitude of issues from life skills to soft skills, from instilling a work ethic to personal initiative. It is uncertain whose responsibility this aspect of ‘graduateness’ is, however it is a common theme in both measurements within the study and deserves greater attention.

In conclusion, the most pleasing and perhaps unanticipated outcome of this study — at least from the perspective of higher education — is the very clear indication that employers’ views encapsulate an understanding of the demands of a changing world of work and, implicit in this, the demands the future will place on new graduates entering the workplace. In this regard, the role of higher education cannot be treated in isolation and must take its rightful place in producing thinking, responsive and intellectually well-grounded individuals who are flexible and can readily adapt to new demands and challenges.

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Acronyms & Abbreviations

ASGISA	Accelerated and shared growth initiative of South Africa
CHE	Council on Higher Education
DST	Department of Science and Technology
DTI	Department of Trade and Industry
HEQF	Higher Education Qualifications Framework
HESA	Higher Education South Africa
JIPSA	Joint Initiative for Priority Skills Acquisition
NBI	National Business Initiative
SAGRA	South African Graduate Recruitment Association
SAQA	South African Qualifications Authority
SASCE	South African Society for Co-operative Education
SET	Science, engineering and technology
WIL	Work Integrated Learning

Appendix 1

Questionnaire

PART A

About your organisation and yourself

Name of your Organisation:

Please classify your organisation in terms of the major industry group/ employment sector:

1	Services (including Financial)	2	Manufacturing	3	Mining
4	Construction	5	Wholesale & retail	6	Transport
7	ICT				

Estimated number of employees in your organisation:

Estimated number of employees in your organisation

Estimated number of employees in your organisation

Under 50 50-250 250-1000 1000+

Your organisation's current focus in undergraduate recruitment:

	<input type="checkbox"/>
Undergraduate Certificate	
Undergraduate Diploma	
Undergraduate Degree	
BTech Degree	
4 year Professional Degree	
Honours Degree	
Other (please specify):	<input type="text"/>

Preferred fields of study in your recruitment:

	<input type="checkbox"/>
Humanities	
Social Sciences	
Law	
Commerce/Business and Management	
Science, Engineering & Technology (SET)	
Other (please specify):	<input type="text"/>

Your position in the organisation:

Length of your current or related work experience (years):

Under 5 5-10 10-20 20+

You are: Male Female

Age Group: 30 & below 31-40 41-50 51 or older

Population Group:

Black African Coloured Indian/Asian White

Your highest level of formal education:

	<input type="checkbox"/>
Grade 12/Senior Certificate	
Undergraduate Diploma	
Undergraduate Degree	
BTech Degree	
4 year professional degree	
Honours Degree	
Post-graduate Diploma	
Master's Degree	
PhD Degree	
Other (please specify):	<input type="text"/>

Please give any additional information, about yourself or your organisation, which you think may be relevant to this study on graduate attributes:

Part B
About graduate attributes in the workplace

1. Basic skills and understanding

- a) Firstly, about "what you get": please indicate how satisfied you are with the practical competence and understanding of the workplace displayed by graduates.
- b) Now about "what you expect": indicate how important you think it is for graduates to have developed these attributes in order to meet the basic requirements of operating effectively in their job.

	A Satisfaction with graduate competence & understanding						B Importance to you of different attributes				
	Very Dissatisfied		Very Satisfied				Unimportant		Very important		
Prior exposure to the work environment	1	2	3	4	5		1	2	3	4	5
Knowing the organisation	1	2	3	4	5		1	2	3	4	5
Ability to find and access information	1	2	3	4	5		1	2	3	4	5
Ability to use new information	1	2	3	4	5		1	2	3	4	5
Ability to handle large amounts of information	1	2	3	4	5		1	2	3	4	5
Proficiency in English	1	2	3	4	5		1	2	3	4	5
Oral presentation skills	1	2	3	4	5		1	2	3	4	5
Written communication skills	1	2	3	4	5		1	2	3	4	5
Numeracy or quantitative literacy	1	2	3	4	5		1	2	3	4	5
Computer literacy	1	2	3	4	5		1	2	3	4	5
Technical ability	1	2	3	4	5		1	2	3	4	5
Ability to use information technology	1	2	3	4	5		1	2	3	4	5

If you were to single out the most important quality or attribute in terms of practical competence and understanding of the workplace, what would this be?

Please briefly describe or give an example to illustrate how this attribute typically manifests itself in the work of new graduates:

2. Knowledge and intellectual ability

- a) Firstly, about "what you get": please indicate how satisfied you are with the knowledge and intellectual ability of recent graduates .
- b) Now about "what you expect": indicate how important you think it is for graduates to have developed these attributes in order to perform well in their job.

	A Satisfaction with graduates' knowledge & intellectual ability						B Importance to you of different attributes				
	Very Dissatisfied		Very Satisfied				Unimportant		Very important		
General knowledge about local and global affairs	1	2	3	4	5		1	2	3	4	5
Subject or discipline knowledge	1	2	3	4	5		1	2	3	4	5
Understanding of core principles & processes	1	2	3	4	5		1	2	3	4	5

Enquiry and research skills	1	2	3	4	5	1	2	3	4	5
Interest in ideas and desire to continue learning	1	2	3	4	5	1	2	3	4	5
Intellectual flexibility and adaptability	1	2	3	4	5	1	2	3	4	5
Understanding of economic and business realities	1	2	3	4	5	1	2	3	4	5
Ability to summarise key issues	1	2	3	4	5	1	2	3	4	5
Ability to relate a specific issue to the broader whole	1	2	3	4	5	1	2	3	4	5
Critical and analytic ability	1	2	3	4	5	1	2	3	4	5
Ability to formulate and check hypotheses and assumptions	1	2	3	4	5	1	2	3	4	5
Ability to follow and construct logical argument	1	2	3	4	5	1	2	3	4	5
Rapid conceptualisation of issues	1	2	3	4	5	1	2	3	4	5

Again, please give what you consider to be the single most important quality or attribute in terms of the knowledge and intellectual ability required for a new graduate to function effectively in the workplace:

Briefly describe or give an example to illustrate how this attribute typically manifests itself in the work engagement of recent graduates:

3. Workplace skills and applied knowledge

- a) Firstly, "what you get": please indicate how satisfied you are with the workplace skills of recent graduates and their ability to apply knowledge.
- b) Now about "what you expect": indicate how important you think it is for graduates to have developed these attributes in order successfully to cope with the demands of the workplace.

	A					B				
	Satisfaction with graduates' workplace skills & applied knowledge					Importance to you of different attributes				
	Very Dissatisfied			Very Satisfied		Unimportant			Very important	
Ability to apply knowledge to new situations	1	2	3	4	5	1	2	3	4	5
Ability to recognise a problem situation	1	2	3	4	5	1	2	3	4	5
Ability to choose appropriate information to address problems	1	2	3	4	5	1	2	3	4	5
An appropriate approach to problem-solving	1	2	3	4	5	1	2	3	4	5
Ability to plan and execute tasks independently	1	2	3	4	5	1	2	3	4	5
Ability to relate specific issues to wider organisational context	1	2	3	4	5	1	2	3	4	5
Ability to monitor and evaluate own work-related actions	1	2	3	4	5	1	2	3	4	5
Ability to devise ways to improve on own actions	1	2	3	4	5	1	2	3	4	5
Ability to deal with different cultural practices	1	2	3	4	5	1	2	3	4	5
Understanding of changing workplace practices	1	2	3	4	5	1	2	3	4	5

In terms of workplace skills and applied knowledge, please again give what you consider to be the single most important quality or attribute which recent graduates need to demonstrate in the work environment

PART C
About quality in general

5. Factors in assessing quality

Please indicate how important you consider the following factors to be in your assessment of the quality of recent graduates who are (or have been) employed in your organisation:

		Importance of different factors in assessing standards				
		Unimportant				Very Important
		1	2	3	4	5
Reputation of the institution attended		1	2	3	4	5
Qualification type		1	2	3	4	5
Intelligence		1	2	3	4	5
Knowledge, conceptual skills and understanding		1	2	3	4	5
Extent of job-relevant specialist knowledge		1	2	3	4	5
Transferable skills		1	2	3	4	5
Personal skills		1	2	3	4	5
Attitudes to the work situation		1	2	3	4	5
Values and sensitivities		1	2	3	4	5
Desire and ability to learn and continue learning		1	2	3	4	5
Social class background		1	2	3	4	5
Gender		1	2	3	4	5
Ethnic background		1	2	3	4	5

6. Balancing knowledge and skills

Please indicate the degree to which you think recent graduates demonstrate an appropriate balance between what they know and can do; i.e. the balance between knowledge and skills to be equipped to engage effectively with the demands of the workplace:

The balance was about right	<input type="checkbox"/>				
There was too much emphasis on knowledge	<input type="checkbox"/>				
There was too much emphasis on skills	<input type="checkbox"/>				

7. Changing workplace practices

Given that workplace practices change from time to time, please indicate the extent to which you think our public higher education institutions equip graduates to adapt effectively to change:

Equip them very well	<input type="checkbox"/>				
Equip them moderately well	<input type="checkbox"/>				
Equip them poorly	<input type="checkbox"/>				
Do not equip them at all	<input type="checkbox"/>				

8. Building social cohesion

In our South African context which is characterised by a diversity of cultural and religious practices, identities and languages, please indicate the extent to which you think our public higher education institutions equip graduates to contribute to the building of social cohesion:

Equip them very well	<input type="checkbox"/>				
Equip them moderately well	<input type="checkbox"/>				
Equip them poorly	<input type="checkbox"/>				
Do not equip them at all	<input type="checkbox"/>				

9. Taking a helicopter view

In summary, what is your "baseline" assessment of recent graduates?

Major strengths	Major weaknesses

If one thing must be done by our institutions to improve on the quality of our graduates, what should this be

--

Appendix 2

List of Employers

Accenture
Adams and Adams
Atlantic Formina
Bagatlamedi
Bell Dewar Hall
BHP Billiton (Energy Coal)
Bophirima District Municipality
Bridgestone
Cell C
Columbus Stainless Steel
Consol Glass
CSIR (Science & Technology)
De Beers
Denel Dynamics
Deneys Reitz Attorneys
Department Of Science & Technology
Dept Of Justice
Dept Of Public Works
Dept Of Water Affairs & Forestry
Discom
Element Six
Ernst & Young
Fibre-Wound Holdings
Financial Intelligence Center
First Paper House
Fluor
FNB
Foschini Group (PTY) Ltd
Greater Tzaneen Municipality
Hatch Africa
Ilima Projects (PTY) Ltd
Ingwe Coal (BHP Billiton)
International Health Care
Inyanga Motors
Irvin & Johnson
Janssen-Cilag
JCI Ltd
Johnson & Johnson
Johnson Controls
JP Morgan Chase Bank
Keypark
Kgankie Construction & Security Service
Khanyisa Construction
Klomp Pantries CC
KPMG
Kumba
Laeveld Korporatiewe Beleggings
Liberty Life
Maveric Clothing
MC Design And Consulting
Mckinsey & Co
Metal Box
Metal Spray
Mintek
Much Asphalt
Murray & Roberts
Nampark Cartons
Nedbank
Nissan
Nortech
Ntthe Quantity Surveyors
PKF
Potch City Engineering
Price Waterhouse Coopers Inc
Protea Hotel - Saldanha
Rand Water
Renaissance
Routledge Modise Attorneys
SA Breweries Ltd
SAA
SABS
Saflor
Safmarine
Samancor Manganese (Pty) Ltd
Sentech
Shoprite Checkers
SIPPI
Standard Bank
Suzlon Corporation Ltd
Syfrets Ltd
The Furnishing Post
Thompsons Tours And Travel
Tiger Brands
Tongaat Hullet
Unilever
Vaaldriehoek Uitgewers
Volkswagen SA
Wade Walker
Werksmans Attorneys
Wesbank
Wild Coast Sun
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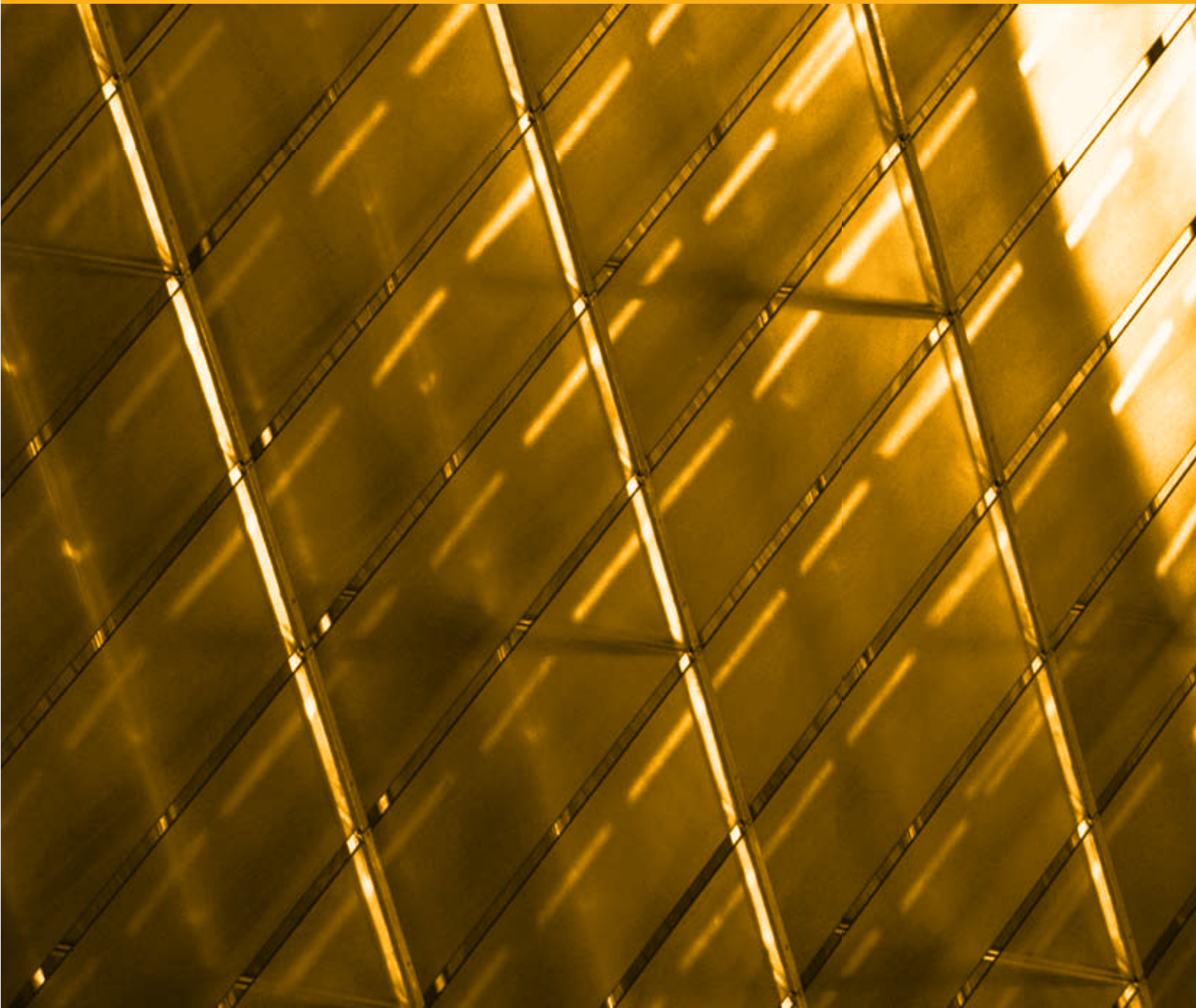
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Every attempt has been made to ensure that the information in this report is up-to-date. However, information may change subsequent to the publication of this report.

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